

# FORCE HEALTH PROTECTION: THE STRATEGIC CHALLENGES OF PROTECTING THE "TOTAL FORCE" IN U.S. AFRICA COMMAND (AFRICOM)

BY

COLONEL PATRICIA L. WOOD  
United States Army

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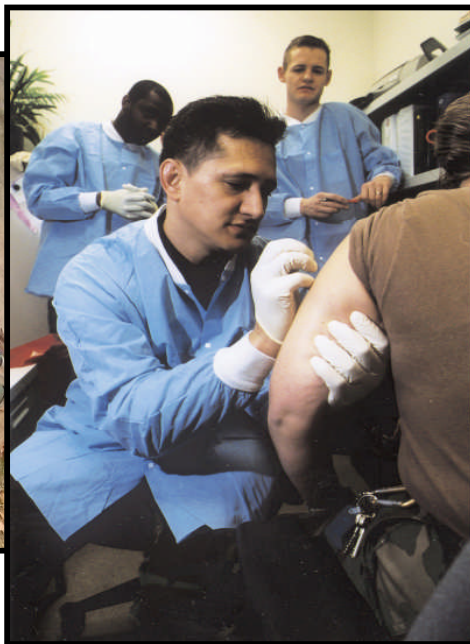


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Force Health Protection: The Strategic Challenges of  
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CHALLENGES OF PROTECTING THE “TOTAL FORCE” IN U.S.  
AFRICA COMMAND (AFRICOM)**

by

Colonel Patricia L. Wood, AN  
Montana Army National Guard

Mr. John Fittipaldi  
Program Adviser  
Senior Fellow  
U.S. Army Environmental Policy Institute  
Environment, Safety and Occupational Health

*Disclaimer*

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U.S. Army War College  
CARLISLE BARRACKS, PENNSYLVANIA 17013





## **ABSTRACT**

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The U. S. military must address the issue of force health protection while conducting stability operations in Africa. AFRICOM's missions will include joint operations, smaller in size, more frequent and in remote areas of the continent. The continent of Africa has a plethora of natural and environmental health threats for which limited countermeasures exist. To ensure force health protection in AFRICOM, a comprehensive force health protection strategy plan must be identified and adopted. Force health protection is more than military medical personnel caring for military personnel; it is about sustaining the force to ensure mission accomplishment.

This paper will identify the U.S. military's force health protection vision, address challenges and offer recommendations for a force health protection strategy in AFRICOM.

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# **FORCE HEALTH PROTECTION: THE STRATEGIC CHALLENGES OF PROTECTING THE “TOTAL FORCE” IN U.S. AFRICA COMMAND (AFRICOM)**

## **INTRODUCTION**

Since the end of the Cold War and the onset of the Global War on Terrorism, there has been significant changes in the way U. S. military conducts operations, to include the new missions planned for U. S. Africa Command (AFRICOM). There must be changes in the way the U. S. military addresses force health protection because of the change in mission requirements needed to support the U.S. National Security Strategy. This paper will discuss the U.S. military force health protection strategy and the formidable challenges of protecting the “Total Force” while conducting operations on the continent of Africa.

## **BACKGROUND ON U. S. AFRICA COMMAND (AFRICOM)**

On February 6, 2007, President George Bush directed the Secretary of Defense to stand up U. S. Africa Command (AFRICOM), a Department of Defense Unified Combatant Command for Africa, by the end of fiscal year 2008. “This new command will strengthen our security cooperation with Africa and create new opportunities to bolster the capabilities of our partners in Africa. Africa Command will enhance our efforts to bring peace and security to the people of Africa and promote our common goals of development, health, education, democracy, and economic growth in Africa.”<sup>1</sup> “The Department of Defense acknowledged the emerging strategic importance of Africa and recognized that peace and stability on the continent impacts not only Africans, both the interests

of the U.S. and international community.”<sup>2</sup> Currently Africa’s U.S. military operations are divided between three combatant commands: U.S. European Command, U.S. Pacific Command and U.S. Central Command. AFRICOM will be an addition to the five geographic commands (U.S. Central Command, U.S. European Command, U.S. Northern Command, U.S. Pacific Command, and U.S. Southern Command) and four functional commands (U.S. Joint Forces Command, U.S. Special Operations Command, U.S. Strategic Command, and U.S. Transportation Command. By September 2008, AFRICOM will be the tenth U.S. Unified Command.<sup>3</sup> Currently the headquarters is co-located with U.S. European Command in Stuttgart, Germany. The headquarters location in Africa has not yet been determined. President Bush named Army GEN William E. “Kip” Ward, as the first AFRICOM commander.

### **GOALS AND MISSIONS OF AFRICOM**

The main focus for AFRICOM is to provide conflict reduction efforts, improve the security environment, defeat terrorist activity, and provide support in crisis response. The primary goal of AFRICOM is to develop a stable environment in Africa, promote civil society and improve the quality of life for those who live on the continent. The missions will include non-traditional military operations, such as humanitarian assistance and disaster relief, training of African militaries and to conduct training, and medical missions. AFRICOM will be responsible for other presidential-directed military operations as required.<sup>4</sup>

At the writing of this paper, AFRICOMs immediate focus is not necessarily on establishing a military presence or responding to a military operation in Africa,



but rather refining the mission, formulating staffing requirements, and determining a headquarters location. A force health protection strategy in AFRICOM must be a critical priority prior to deployments in Africa because the nature of stability operations planned, such as multi-component jointly staffed, smaller contingencies, and/or in remote areas.

Environmental health threats are the predominant threat to military personnel because of the many viruses, bacteria and parasites unique to Africa. Now is the optimum time to formulate a strategy for force health protection in Africa, identify critical force protection issues, and identify recommendations of strategic options to minimize the infectious disease threat to the operational force, and ensure a comprehensive and mobile medical care system to care for the sick and injured.

### **FORCE HEALTH PROTECTION STRATEGY**

The Department of Defense's force health protection strategy is to protect the health of military members from medical and environmental hazards associated with military service to the maximum extent possible. The Presidential Review Directive NSTC-5, August 1998, "Planning for Health Preparedness for and Readjustment of the Military, Veterans, and Their Families after Future Deployments" directs the Department of Defense's force health protection strategy. The Department of Defense's force health protection strategy must continue to be revised and developed to meet the evolving National Security and National Military Strategies. Force health protection requirements of the 21<sup>st</sup> Century are different from those of past centuries because today's military

conducts not only combat missions, but non-combat missions, such as peacekeeping, peacemaking, humanitarian assistance and/or training. Advancing military and medical technology and emerging strategies and tactics require changes in protection and sustainment of the force. This conceptual framework must address a continuum of full dimensional protection for all military personnel, at all times. This evolving strategy must seek to balance the military health system's responsibilities to promote and sustain health and wellness throughout each person's military service; prevent acute and chronic illness and injuries during training and deployment; and rapidly stabilize, treat, and evacuate casualties.<sup>5</sup>

The responsibility and accountability of force health protection lies directly with every commander at all levels. Commanders must ensure that the health of their forces is sustained and protected in all military activities.<sup>6</sup> According to the Department of Defense, force health protection is defined as all measures taken by commanders, supervisors, and individual service members to promote, protect, improve, conserve, and restore the mental and physical well-being of Service members across the full range of military activities and operations.<sup>7</sup>

The Department of Defense's "Joint Vision" identifies force health protection as "an integrated and focused approach to protect and sustain the Department of Defense's most important resource – its Service members and their families – throughout the entire length of service commitment." The events of September 11, 2001 prompted the Department of Defense to revise health service support doctrine, policies and planning guidance to include full

dimensional protection for all Service members at all times. The new force health protection guidance is made up of three interrelationship concepts: *Healthy and Fit Force*, *Prevention and Protection* and *Medical and Rehabilitative Care*.<sup>8</sup>

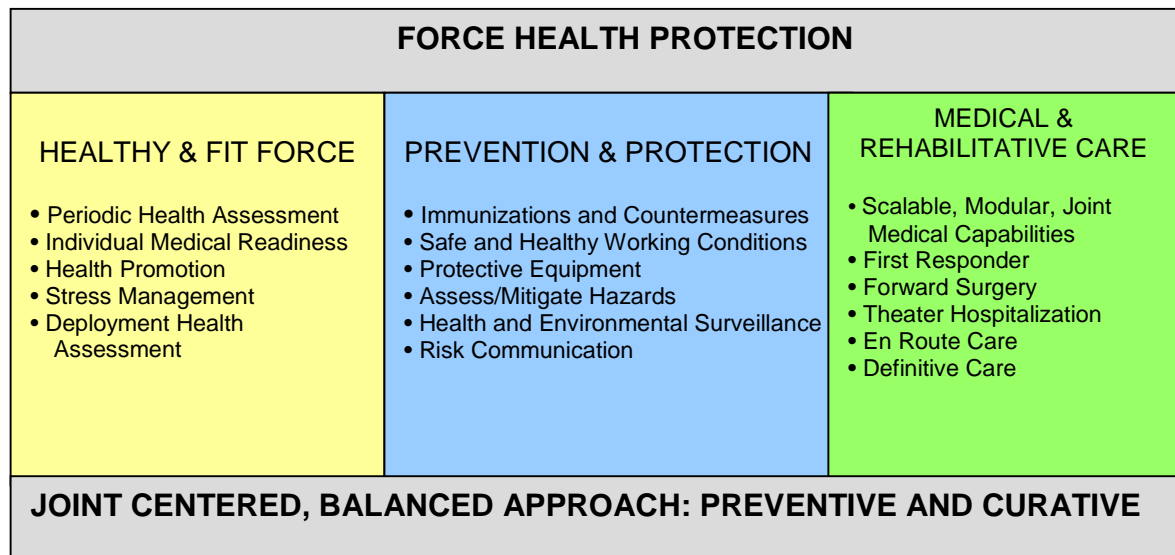


Figure 3-Force Health Protection: Three Pillars, One Infrastructure, One Program

### ***Healthy and Fit Force***

The key to a successful force health protection strategy is to begin with a healthy and fit force. A healthy force is more productive, more resistant to illness, less prone to injury and the adverse influence of stress, and better able to quickly respond to injury or illness.<sup>9</sup>

In an effort for the military to recruit and fill its all-volunteer ranks, enlistment and induction standards are often compromised by the military waiver process. In fiscal year 2006, approximately 17 percent of first-time active Army recruits were accepted under waivers for various medical, moral, or drug and alcohol problems. Of the 17 percent accepted under waivers, 38 percent were

accepted for medical reasons.<sup>10</sup> Many military personnel will be exposed to environmental health threats that may exacerbate pre-existing medical conditions, therefore careful consideration must be taken when granting medical waivers. The military must continue to find a way to fill its ranks without sacrificing medical standards.

AFRICOM's initial focus must be on recruiting and sustaining medically ready and deployable personnel. AFRICOM's missions will not be for the meek and the mild, but for those who are able to defend against disease and withstand the rigors of a perilous environment.

### ***Prevention and Protection***

Prevention and protection include immunizations and countermeasures, safe and healthy working conditions, protective equipment, assessing and mitigating the identified hazards, conducting health and environmental surveillance and communicating the risks.<sup>11</sup> Casualty prevention and protection is a force-multiplying tool for commanders. Before deployment, identification and control of environmental and occupational health threats is required. During deployments and operations, the environmental health threat often produces disease and non-battle injuries (DNBI). Prevention and protection from DNBI requires a team effort between the chain of command, individual military personnel and the medical personnel. The medical team conducts health threat assessments and recommends countermeasures; the individual service member must be committed to adhere to the recommendations, and the chain of command must be fully committed to implementing the recommended preventive

countermeasures.<sup>12</sup> Preventive medicine will be a pivotal and critical piece of force health protection strategy in AFRICOM because of the naturally occurring disease threats in Africa.

### ***Medical and Rehabilitative Care***

Since the beginning of the U.S. Army in 1775, advancements in technology and the development of new treatment modalities revolutionized the practice of military medicine. Military medicine is committed to keep pace with the constantly changing battlefield doctrine to meet the needs of the commander and forces. The current military health service support system is now based on the Joint Health Service Support Strategy, a coordination of all U.S. military component capabilities.<sup>13</sup>

The Joint Health Service Support Strategy defines health service support as a military medical system developed to maintain individual and group health needed to accomplish a military mission. Health service support in the Department of Defense has a dual role. The first role is to utilize individual healthful practices to prevent and/or correct any human condition that impairs or precludes achieving the mission; and the second role is to effectively and efficiently use medical capabilities as needed.<sup>14</sup>

Forward medical and rehabilitative care must be scalable and modular with combined U.S. military component medical capabilities. It must consist of highly proficient first responders to render initial essential stabilizing medical care. It must be also staffed for resuscitative surgery with theater hospitalization capabilities. Forward medical care must be organic with medical evacuation and

en route care between levels of care.<sup>15</sup> Medical care and evacuation will be one of the greatest challenges to the Command Surgeon in AFRICOM.

The overall healthcare infrastructure within Africa and the availability of basic medical care to its population have an immeasurable impact on the level of disease and injury risks among non-indigenous personnel, which includes military personnel conducting operations on the continent.<sup>16</sup> Africa is the second-largest and second most-populous continent in the world (11,668, 545 sq miles).<sup>17</sup> Healthcare in many African regions is showing signs of improvement as the quality of hospitals and the availability of qualified doctors is improving. The Council for Health Services Accreditation for Southern Africa (COHASA) has been accrediting many hospitals that meet the applicable predetermined and published standards; however, the rising incidence of HIV/AIDS in Africa continues to place considerable strain on the public health system in many African countries.<sup>18</sup> Africa is suffering under the world's heaviest disease burden, has a very low ratio of healthcare providers to the population, in addition the healthcare infrastructure is not adequate, and there is very little modern medical technology.

Non-governmental agencies (NGOs) in Africa are currently contributing valuable information and ideas, advocating effectively for positive change, provide essential operational capacity in emergencies and development efforts.<sup>19</sup> The Office of the Special Coordinator for Africa and the Least Developed Countries (OSCAL) reported as of 2003, 2459 NGOs are conducting operations in Africa.<sup>20</sup> The Command Surgeon may be able to coordinate and collaborate

with the health related NGOs for medical support as part of the force health protection strategy for AFRICOM. The proposed AFRICOM missions will be executed jointly with all military components, non-government agencies, and inter-agencies.

Because of the vast size of Africa, the continent's widespread poverty, stretched and limited healthcare resources, and the infectious disease threat, military planners must ensure medical care is organic to the mission. It must be self-sustaining and not rely on the host-country to supplement or support the medical care requirements for the U.S. military personnel deployed to the continent. Definitive treatment facilities must be identified to ensure uninterrupted medical care.

The greatest challenges AFRICOM's force health protection and health service support strategy will be not only be safeguarding military personnel from environmental health threats, specifically infectious diseases, but also providing for comprehensive forward medical care and early evacuation specifically tailored for each mission. AFRICOM's force health protection strategy must address modular, light and rapid health service support with a definitive plan for an intermediate stop for aero evacuation en route medical care.

## **PREVENTIVE MEDICINE**

Preventive medicine is a critical component of force health protection, and defined as "the anticipation, prediction, identification, surveillance, evaluation, prevention, and control of disease and injuries." Preventive medicine focuses on communicable diseases, vector, food, air, and water-borne diseases,

occupational, environmental, health related diseases and injuries, disease and non-battle injuries, and training injuries.<sup>21</sup>

Military preventive medicine has grown and is constantly changing tremendously. The change is required because of the transformation in U.S. war fighting doctrine, the expansion of operations other than war, the emergence of new disease and injury threats, and the changing demographics of military personnel.<sup>22</sup> The planned and proposed missions for AFRICOM is a perfect example of the need for preventive medicine to change to meet the new military mission requirements essential for supporting the National and Military Security Strategies.

Preventive medicine is essential to the medical planning of force health protection and health service support in AFRICOM because of the environmental health threats (infectious diseases) in Africa, complicated with the vastness of the continent and potential remoteness of the mission requirements. Deploying and sustaining a healthy force anytime, anywhere, specifically to Africa, requires a comprehensive and collaborative approach by the preventive medicine team and commanders it supports.

### **MEDICAL THREAT ASSESSMENT**

Conducting the medical threat assessment consists of two parts-collecting the information and analyzing the data to best support the military mission. Medical threat has been defined as 'the composite of all ongoing or potential enemy actions and environmental conditions that will reduce combat effectiveness through wounding, injuring, causing disease or performance



degradations.”<sup>23</sup> There are countless military and civilian information databases to collect current emerging or reemerging health and safety issues specific to a geographic area. The U.S. Center for Health Promotion and Preventive Medicine (USCHPPM), Armed Forces Medical Intelligence Agency (AFMIC), Center for Disease Control (CDC) and World Health Organization (WHO) are primary agencies that report health and safety issues of critical importance.

According to Walter Reed Army Institute of Research, drug-resistant pathogens and newly emerging infectious diseases are a growing threat to military personnel and a challenge to scientists.<sup>24</sup> Africa has numerous high and intermediate potential infectious diseases threats of operational importance throughout the continent. The pre-deployment medical threat analysis prioritizing infectious disease in Africa is critical to ensure focus on those diseases and countermeasures of highest risk. Infectious disease threat analysis must include an understanding of the basic epidemiology of significant human infections, including their modes of transmission and incubation periods, and the distribution of geographically specific agents.<sup>25</sup>

Prioritizing and communicating the threats are the most critical steps in the medical threat assessment process. An all inclusive list of possible risks for any given deployment is not practical and does not allow the medical staff officer and commander to focus on the greatest threat and most important countermeasures.<sup>26</sup> The prioritized medical threat must be communicated to the chain of command, the medical personnel and the military personnel. Effective

countermeasures for the significant medical threats must be identified, recommended, and communicated.

A medical threat assessment is among the most important strategic and operational planning steps required to prepare a commander for the deployment. The infectious disease threat on the continent of Africa is high, therefore, it is paramount a thorough medical threat assessment is completed and communicated to the chain of command prior to deploying military personnel to the area.

#### **DISEASE AND NON-BATTLE INJURY: AFRICA'S FORMIDABLE ENEMY**

*"Should the disorder {smallpox} infect the Army in a natural way and rage with its usual virulence, we should have more to dread from it than from the sword of the enemy."*

General George Washington  
January 1777  
Morristown, New Jersey

Disease and non-battle injuries (DNBI) is defined by the Army as "preventable diseases and injuries that are not a result of hostile action by or against an organized enemy, but of non-battle conditions that render a Soldier combat-ineffective. These diseases and injuries include infectious diseases, arthropod-borne diseases, food- and water-borne diseases, environmental injury/illness (such as heat, cold, altitude, toxic materials), and occupational injury/illness (such as noise-induced hearing loss)."<sup>27</sup>

Military strategists and planners have recognized the threat to military operations from infectious diseases since the beginning of the science of

microbiology. Up until World War II, military deaths caused by infectious disease outnumbered those caused by direct combat injuries. The potential continues for naturally occurring or intentionally disseminated infectious diseases to impact military operations.<sup>28</sup> DNBI accounted for more than 95 percent of World War II's battlefield hospital admissions and 69 percent in Vietnam.<sup>29</sup>

As recent as 2003, a Special Operations Marine Expeditionary Unit (MEU), conducting operations in Liberia, Africa, was overcome with malaria, one of the world's most common causes of DNBI. Of the 157 Marines in the unit, 69 members, (44 percent), were infected. Eleven other members of the same Joint Task Force located in Liberia also came down with the disease. No deaths occurred, but four Marines went into a coma from cerebral malaria and were medically evacuated to Bethesda Naval Hospital in Maryland. The investigation concluded that the Marines were not compliant with the recommended countermeasures to protect against malaria. The camp was set up in a bushy area on the edge of a hot, steamy, thick jungle that was filled with standing water. Mosquito nets were not used, the Marines slept with their shirts off because of the heat and many admitted they did not comply with the preventive medication prescribed for malaria prevention. Even some of those compliant with this prophylactic medication came down with the disease. The Navy Bureau of Medicine and Surgery (BUMED) placed blame with the leadership, discipline and equipment.<sup>30</sup>

As of today, many infectious disease countermeasures have been developed to protect the health of U.S. military personnel; however, U.S. military

personnel continue to be confronted with a wide variety of pathogenic threats for which no countermeasures exist. Since AFRICOM's primary missions will include non-combat roles such as embedded military training, humanitarian support and disaster relief, infectious diseases will be the predominant enemy for U.S. military personnel supporting missions in Africa. U.S. military personnel will deploy and support operations in geographic regions where endemic infectious agents exist in Africa. Infectious diseases of operational importance and those identified as having a potential critical health consequence in Africa will be addressed.

### **INFECTIOUS DISEASES OF HIGH RISK IN AFRICA**

Over the past three decades, 20 previously known diseases have re-emerged or spread geographically and at least 30 diseases, not previously known, have been identified, many of them jumping from animals to people in tropical areas of the world.<sup>31</sup> Africa has been labeled the infectious continent. No continent has been hit harder than Africa with outbreaks of new, exotic infectious diseases, as well as the resurgence of old pathogens. Africa's tropical climate is a breeding ground for emerging infectious diseases. Since the mid-1970s, the world has seen the emergence of 30 new infectious diseases and the return of killer pathogens, such as malaria and cholera. Many of these deadly pathogens originate on the African continent. Conditions in Africa, such as poverty, malnutrition, crowded living conditions, limited health care and an unstable political climate, permit infectious disease to spread undaunted.<sup>32</sup>

For the purpose of this paper, Africa will be geographically divided to determine infectious diseases of operational importance specific to each region.

The regions are North Africa, Southern Africa, West Africa, Central Africa and East Africa.

- NORTH AFRICA-Algeria, Canary Islands, Egypt, Libya, Madeira Islands, Morocco, Tunisia and Western Sahara
- SOUTHERN AFRICA-Angola, Botswana, Lesotho, Namibia, South Africa, Swaziland, Zambia and Zimbabwe
- EAST AFRICA- Burundi, Djibouti, Eritrea, Ethiopia, Kenya, Malawi, Mozambique, Nauru, Rwanda, Somalia, Tanzania and Uganda
- WEST AFRICA-Benin, Burkina Faso, Cape Verde, Cote d'Ivoire, Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Mali, Mauritania, Niger, Nigeria, Saint Helena, Sao Tome and Principe, Senegal, Sierra Leone and Togo
- CENTRAL AFRICA-Cameroon, Central African Republic, Chad, Republic of the Congo, Equatorial Guinea, Gabon and Sudan

The U.S. Army Center for Health Promotion and Preventive Medicine (USACHPPM) has developed a bank of Medical Threat Briefings (MTB) for country specific preventive health threats. Although it's difficult to categorize risk assessment (high and intermediate) for each disease at any given time, for this paper, an attempt to summarize was made by extracting information contained in the Medical Threat Briefings prepared by USACHPPM for African country specific slides. The information contained in the following Tables 1 through 5 identifies the overall infectious disease threat in Africa, in any given region, at any given time. Preventive medicine personnel will need to complete a real-time medical threat assessment immediate prior to mission deployment in an effort to gather the most current and updated environmental health threat of the area.

REGION	HIGH (GREATEST) RISK	INTERMEDIATE (POTENTIAL) RISK
<b>North Africa</b>	Diarrhea (bacterial & protozoal)	Brucellosis
Algeria	Hepatitis A and E	Cholera
Canary Islands	Typhoid Fever	Chikungunya
Egypt	Malaria	Crimean-Congo Fever
Libya	Dengue Fever	Japanese Encephalitis
Madeira Islands	Leishmaniasis	Rickettsioses
Morocco	Rabies	Sand-Fly Fever
Tunisia		Scrub Typhus
Western Sahara		West Nile Fever
		Anthrax
		Q-Fever
		Gonorrhea/Chlamydia
		HIV
		Hepatitis B
		Leptospirosis
		Tuberculosis

Table 1-North Africa's High and Intermediate Infectious Disease Risk

REGION	HIGH (GREATEST) RISK	INTERMEDIATE (POTENTIAL) RISK
<b>Southern Africa</b>	Diarrhea (bacterial & protozoal)	Brucellosis
Angola	Hepatitis A and B	Cholera
Botswana	Typhoid/Paratyphoid Fever	Hepatitis E
Lesotho	Malaria	Crimean-Congo Hemorrhagic Fever
Namibia	Trypanosomiasis-Gambiense	Rickettsioses
South Africa	HIV	Chikungunya
Swaziland	Meningococcal meningitis	Leishmaniasis
Zimbabwe	Schistosomiasis	Rift Valley Fever
		West Nile Fever
		Gonorrhea/Chlamydia
		Leptospirosis
		Tuberculosis
		Anthrax
		Q-Fever
		Rabies

Table 2-Southern Africa's High and Intermediate Infectious Disease Risk

REGION	HIGH (GREATEST) RISK	INTERMEDIATE (POTENTIAL) RISK
<b>East Africa</b>	Diarrhea (bacterial & protozoal)	Cholera
Burundi	Hepatitis A, B and E	Chickyungunya
Comoros	Typhoid/Paratyphoid Fever	Leishmaniasis
Djibouti	Malaria	Rickettsioses
Eritrea	HIV	Rift Valley Fever
Ethiopia		Sand-Fly Fever
Kenya		West Nile Fever
Madagascar		Yellow Fever
Malawi		Avian Influenza
Mauritius		Anthrax
Mayotte		Q-Fever
Mozambique		Rabies
Reunion		Gonorrhea/Chlamydia
Rwanda		Leptospirosis
Seychelles		Schistosomiasis
Somalia		Meningococcal Meningitis
Tanzania		Tuberculosis
Uganda		

Table 3-East Africa's High and Intermediate Infectious Disease Risk

REGION	HIGH (GREATEST) RISK	INTERMEDIATE (POTENTIAL) RISK
<b>West Africa</b>	Diarrhea (bacterial & protozoal)	Brucellosis
Benin	Hepatitis A and B	Cholera
Burkina Faso	Typhoid/Paratyphoid Fever	Hepatitis E
Cape Verde	Malaria	Boutonneuse Fever
Cote d'Ivoire	Yellow Fever	Chikungunya
The Gambia	HIV	Crimean-Congo Hemorrhagic Fever
Ghana	Lassa Fever	Dengue Fever
Guinea	Schistosomiasis	Leishmaniasis
Guinea-Bissau		Rift Valley Fever
Liberia		Sindbis Virus
Mali		Gambiense trypanosomiasis
Mauritania		Murine Typhus
Niger		West Nile Virus
Nigeria		Gonorrhea/Chlamydia
Saint Helena		Leptospirosis
Sao Tome and Principe		Meningococcal meningitis
Senegal		Tuberculosis
Sierra Leone		Anthrax
Togo		Q-Fever
		Rabies
		Ebola Hemorrhagic Fever

Table 4-West Africa's High and Intermediate Infectious Disease Risk

REGION	HIGH (GREATEST) RISK	INTERMEDIATE (POTENTIAL) RISK
<b>Central Africa</b>	Diarrhea (bacterial & protozoal)	Brucellosis
Cameroon	Hepatitis A, B and E	Cholera
Central African Republic	Typhoid/Paratyphoid	Chikungunya
Chad	Malaria	Crimean-Congo Hemorrhagic Fever
Congo	Dengue Fever	Leishmaniasis
Democratic Republic of Congo	Trypanosomiasis	Onyong-nong
Equatorial Guinea	Schistosomiasis	Rickettsioses
Gabon	Meningococcal Meningitis	Rift Valley Fever
Sudan		Sand Fly Fever
Zambia		Sindbis Virus
		Typhus
		West Nile Fever
		Yellow Fever
		Anthrax
		Q-Fever
		Rabies
		HIV
		Gonorrhea/Chlamydia
		Leptospirosis
		Tuberculosis

Table 5-Central Africa's High and Intermediate Infectious Disease Risk

## INFECTIOUS DISEASES OF OPERATIONAL IMPORTANCE IN AFRICA

The following infectious diseases have been identified as having a critical operational importance in Africa because they have been identified as a *very high risk* and for which no immunization is available. Protection of these diseases must rely on other less reliable countermeasures, such as chemoprophylaxis. Chemoprophylaxis is defined as the administration of medication before, during, or after possible exposure to an infectious agent, to prevent either infection or disease.<sup>33</sup>



### ***Infectious Diseases of Very High Risk (Chemoprophylaxis Protection)***

- Malaria

Malaria is probably the most widely spread infectious disease in Africa for which no vaccine is available. It is considered a high risk in all regions of the continent. Malaria is caused by a parasite transmitted by an infected female mosquito. Malaria is a major international public health concern, causing 350-500 million infections worldwide and approximately 1 million deaths. Malaria remains highly relevant to the military because of its prevalence, debilitating nature, potential lethality and tendency to become resistant to medication.<sup>34</sup> Clinical presentation of malaria is characterized by fever and influenza-like symptoms. Malaria symptoms can develop as early as 7 days after initial exposure and as late as several months after departure from the malarious area. Malaria can be treated with antimalarial drugs and most effectively early in the course of the disease.<sup>35</sup> Malaria clinical symptoms range from self-limiting symptoms to death.

- HIV/AIDS

HIV/AIDS is considered a very high risk on the continent of Africa, specifically in the South, East and West regions of the continent. HIV is transmitted through sexual contact, needle and syringe sharing or contact with infected blood. The U.S. Department of Defense HIV/AIDS Prevention Program, reported in their 2006 Annual Report, that the prevalence of HIV in the African militaries range from 3 percent to 11 percent in the Angola Armed Forces, to 11.3 percent in the Cameroon Armed Forces to 21 percent to 25 percent in the South African National Defense.<sup>36</sup> The Joint United Nations Program on HIV/AIDS estimates that, as of the end of 2005, nearly 40 million persons were living with HIV/AIDS worldwide. The most globally affected part of the world remains sub-Saharan Africa.<sup>37</sup>

- Diarrhea (bacterial and protozoal)

Diarrhea is considered a very high risk health threat to U.S. military personnel in all regions of Africa. Most likely route of transmission is through ingestion of contaminated water or food. An outbreak of diarrhea within military forces can have a devastating effect on military readiness and has the potential to render an operation completely ineffective.

- Dengue Fever

Dengue fever is mosquito borne and is considered a very high risk, especially in the North and Central areas of the region and during epidemic outbreaks. Dengue is endemic in Africa. Dengue fever presents by sudden onset after an incubation period of 3-14 days of high fever, severe frontal headache, and

joint and muscle pain. Symptoms are self-limiting and minimal treatment is available or required.<sup>38</sup> Dengue fever has been a concern and significant threat in recent deployments to Haiti, Somalia, and other tropical areas of the world.<sup>39</sup>

- Lassa Fever (Viral Hemorrhagic Fever)

Lassa fever is an acute viral illness and found to be endemic in areas of West Africa. It is caused by a virus transmitted from infected rodents to humans. Most infections are mild, but some are severe, causing hemorrhagic fever that is often fatal.<sup>40</sup> Risk may be higher to military personnel as they conduct operations and set camp in rural remote areas.

- Hepatitis E

Hepatitis E, a liver disease, is food- and water-borne, and considered a disease of great risk for infection in the North, East and Central areas of the continent. Epidemics have been reported in Northern and sub-Saharan Africa. The incubation period averages 40 days and most often the flu-like symptoms are self-limiting.<sup>41</sup>

- Trypanosomiasis

Also known as “African Sleeping Sickness,” trypanosomiasis is caused by a parasite obtained from an infected tsetse fly bite. African trypanosomiasis is confined to tropical Africa. Signs and symptoms are initially nonspecific; however, the infection progresses to meningoencephalitis. Symptoms generally appear within 1 to 3 weeks of exposure and untreated cases are eventually fatal.<sup>42</sup>

- Schistosomiasis

Schistosomiasis is caused by a parasite obtained from infected freshwater snails and is most prevalent in sub-Saharan Africa. Infected snail larvae are capable of penetrating the unbroken skin of a human host. In highly disease-endemic areas, prevalence rates can exceed 50 percent among the local population. Clinical symptoms of acute infection can occur within 2 to 12 weeks of exposure. Medication is available for treatment.<sup>43</sup> Military personnel may be at increased risk if the mission requires freshwater contact.

- Leishmaniasis

Leishmaniasis is caused by a parasite from an infected female sand fly bite. Leishmaniasis is found in approximately 90 countries of the world, particularly found in the North and East regions of the world. It is most prominent in North Africa. It has two forms of disease: cutaneous and visceral. The cutaneous form causes skin sores and the visceral form affects the internal

organs of the body. Leishmaniasis is more common in rural than urban areas. Infection can result from just one bite from an infected sand fly.<sup>44</sup>

### ***Infectious Diseases of Very High Risk (Immunization Protection)***

The following infectious diseases have been identified as having a critical operational importance in Africa because they have been identified as a *very high risk* and for which immunization is available.

- Yellow Fever

Yellow fever is the greatest risk in sub-Saharan Africa. It is both endemic and intermittently epidemic. It is a virus transmitted to humans through the bite of an infected mosquito. Illness ranges in severity from influenza-like symptoms to severe hepatitis and hemorrhagic fever. The fatality rate in Africa varies, but is approximately 20 percent.<sup>45</sup> Vaccination is available, but only given to those military personnel deploying to areas of high risk for Yellow Fever exposure.

- Hepatitis A

Hepatitis A, an acute infection of the liver, is a high health threat risk in all regions of Africa. Hepatitis A's transmission is through contaminated food and water. Hepatitis A symptoms may go unnoticed or its clinical symptoms may range in severity from a mild illness lasting 1-2 weeks to a severely disabling disease lasting several months.<sup>46</sup> Hepatitis A vaccine is available and required for all military service members.

- Hepatitis B

Like Hepatitis A, hepatitis B is a high health threat risk in all regions of Africa. Hepatitis B, an acute or potentially chronic infection of the liver, is transmitted through contact with infected blood. The incubation period of Hepatitis B averages 120 days.<sup>47</sup> Hepatitis B vaccine is available and required for those military personnel at risk for exposure to blood.

- Typhoid Fever

Typhoid fever is considered a high risk health threat in all regions of Africa. It is caused by a bacteria obtained from contaminated food and water. Typhoid fever, a systemic bacterial infection, presents as an acute, life-threatening febrile illness. An estimated 22 million cases of typhoid fever occur worldwide each year with 200,000 related deaths. Clinical presentation is a persistent fever and other flu like symptoms.<sup>48</sup> Typhoid vaccine is available and

given to military personnel deploying to an area of recognized high risk of typhoid exposure.

- Meningococcal Meningitis

Meningococcal meningitis is the greatest risk in the South and Central regions of Africa. The Center of Disease Control calls the sub-Saharan African the “meningitis belt.” The disease is more prevalent during the dry season. Meningococcal disease is an acute bacterial infection characterized by the sudden onset of fever and flu-like symptoms. The case-fatality exceeded 50 percent, but early diagnosis, modern therapy and supportive measures have lowered the ratio to approximately 10 percent in developed countries. Early diagnosis and treatment are critical.<sup>49</sup> Meningococcal meningitis vaccine is available and all military personnel receive the vaccination upon recruitment and deployment.

- Rabies

Rabies is considered a high risk in some areas of North Africa. It is an acute, progressive, fatal encephalomyelitis virus transmitted by an infected animal bite.<sup>50</sup> Immunizations are available and pre-exposure immunizations are given to military personnel conducting missions in areas endemic for rabies, and those who may be at risk for coming in contact with a rabid animal.

Africa has many other infectious disease threats identified by the U.S. Center for Health Promotion and Preventive Medicine as intermediate risks to U.S. military personnel in Africa. Diagnosing infectious diseases can be a formidable challenge in itself, especially in remote areas void from specific laboratory testing. Many infectious disease symptoms mimic similar clinical signs, making early and confirmed diagnosis very difficult. Medical personnel will be challenged to ensure early and accurate diagnosis and treatment of the many infectious disease threats of potential harm to U.S. military personnel serving in Africa.

## **FORCE HEALTH PROTECTION COUNTERMEASURES**

Successful prevention of DNBI requires combined effort from the chain of command, medical personnel, and the service member for successful implementation and compliance of countermeasures. The foremost important step in identifying appropriate countermeasures is conducting a medical threat assessment to identify the potential health hazards. When elimination and/or control of the identified health threat is not possible, the commander must accept the risk, the mission will take place regardless of the risk, and defensive countermeasures must be implemented.

Countermeasures including immunizations, chemoprophylaxis, personal protective clothing and equipment, vector control, training, information briefings and pamphlets are vital to casualty prevention.

### ***Immunizations***

Immunizations are only one line of defense for protection against highly lethal infectious diseases. Of the many highly contagious infectious diseases potentially threatening to military forces, there are only a few of these pathogens for which vaccines have been developed. The U.S. Department of Defense Directive, Number 6205.02E, Policy and Program for Immunizations to Protect the Health of Service Members and Military Beneficiaries directs the implementation of vaccines for military forces from vaccine-preventable diseases, across the spectrum of peacetime, contingency, and wartime situations.<sup>51</sup> Military membership requires receiving immunizations as a condition of participation in the U.S. Armed Forces. Immunizations not only protect the individual, but also

other service members and the community. Bottom line, immunizations are one confirmed countermeasure available to protect the force.

### ***Chemoprophylaxis***

Chemoprophylaxis offers medication protection for certain infectious diseases before, during, and after exposure. For chemoprophylaxis to be effective, a joint effort between medical personnel, commanders, and the individual service members is paramount. Military personnel must identify the chemoprophylaxis, commanders must have a program in place to ensure compliance, and individual service members must be compliant in taking the prescribed medication. Failure to comply can directly affect the outcome of the mission.

### ***Personal Protective Clothing and Equipment***

Personal protective clothing and equipment is any specialized clothing or barrier used to protect against injury or illness. The Department of Defense Insect Repellent System provides direction for protection against diseases transmitted by insects and other arthropods. This strategy includes simultaneous use of both skin (DEET) and clothing (Permethrin) repellents, and properly worn uniforms.<sup>52</sup> Condoms, mosquito nets, respirators, and/or gloves may also offer protection against individual infectious disease threats.

### ***Education/Training***

Training, presentations, and pamphlets can be effective countermeasures used to inform military personnel about potential health hazards in the

deployment area. USCINPAC Instruction 6200.2, Force Health Protection (FHP) Program for Deployments, requires commanders to provide pre-deployment health threat briefing to include the following areas:

Immunizations	Motor Vehicle and General Safety
Chemoprophylaxis	Environmental Factors
Personal Protective Measures	Hazardous Plants and Animals
Sexually Transmitted Diseases	Combat Stress Control
Safe Food and Water	Personal Health and Fitness <sup>53</sup>

Identification and implementation of countermeasures will be critical to force health protection in AFRICOM, specifically to preventing infectious diseases. Strict adherence to recommended countermeasures may not eliminate exposure and infectious disease, and not all infectious diseases resulting from exposure during a deployment are apparent at the end of the operation. Debriefings, self-assessments, and clinical evaluations to screen for infectious disease potentially acquired during the operation must be ongoing upon return from the mission. <sup>54</sup> For those military personnel who are compliant with all countermeasures and recommendation, and are still inflicted with illness and injury, they will be provided comprehensive medical and rehabilitative through the military medicine system.

### **AFRICOM'S PROPOSED MEDICAL ORGANIZATION**

The proposed AFRICOM's organizational chart for the Office of the Command Surgeon and Medical Division identifies the Office of the Command Surgeon as Special Staff to the Commander, AFRICOM, and the Medical Division reporting to the Director for Operations and Logistics. The proposed staffing in the Surgeons' Office consists of an administrative staff of 3, and the

Medical Division has 22 positions, divided into three functional areas: International Health Programs, Medical Plans and Operations, and Force Health Protection.<sup>55</sup>

According to Joint Task Force Doctrine, the Joint Force Task Surgeon is the principal advisor to the commander for force health protection and health service support and, the Surgeon reports directly to the Joint Task Force Commander as a member of the Special Staff. According to the proposed organizational chart, the Surgeon is on the Special Staff, however, the Medical Division reports through the Directorate for Operations and Logistics.

This proposed alignment separates the Command Surgeon from the Medical Division, the execution arm of medical programs. Doctrinally organizing and consolidating medical personnel and resources with the Command Surgeon will ensure synchronized and coordinated force health protection and health service support. AFRICOM cannot minimize the importance of a direct line of communication with the Command Surgeon and the need for a resourced robust medical staff.

## **TRANSFORMATION: U.S. MILITARY AND FORCE HEALTH PROTECTION**

The U.S. military is currently transforming and preparing to meet the challenges of today and tomorrow. The organizational changes are required because of today's operational tempo and tomorrow's unpredictable threats. U.S. military's operational forces are now more mobile, dispersed, and jointly partnered with all branches of the military. This is especially critical for successful execution of the proposed AFRICOM's missions. This transformation brings



challenges to the military medical personnel to protect the force by using every possible force health protection method available.

Force health protection is currently transforming to a multi-component joint and interdependent capability to meet the continuum of health care requirements for military personnel which will be critical to force health protection in AFRICOM. The Army and Navy medic, now required to have advanced life saving capabilities, support the troops on the ground, and prepare them for transfer to the next level of care. All branches provide theatre medical capability with medical personnel strategically located for immediate care. The Air Force provides the en route care for medically stabilized patients.

The wave of the future for military medicine is to continue to transform to a combined component joint force that is smaller with mobile capability to ensure medical care is located in the right place at the right time to support the healthcare needs of today's military forces. Today military medicine's adjustments and continued transformation is now better suited to meet the force health protections requirements for AFRICOM's proposed stability operations.

## SUMMARY

*A corps of Medical Officer was not established solely for the purpose of attending the wounded and sick...the labors of Medical Officers cover a more extended field. The leading idea, which should be constantly kept in view, is to strengthen the hands of the Commanding General by keeping his army in the most vigorous health, thus rendering it, in the highest degree, efficient for enduring fatigue and privation, and for fighting. In this view, the duties of such a corps are a vital importance to the success of an army, and commanders seldom appreciate the full effect of their proper fulfillment.*

Major Jonathan Letterman  
Medical Director of the Civil War Army of the Potomac

The strategy for force health protection for AFRICOM is a challenge given the proposed multifunctional, multi-component joint force, and highly dispersed missions for AFRICOM, the infectious disease threat in Africa, and the range of medical care required to support the forward deployed military personnel. Because of AFRICOM's potential long distances between forward units and fixed medical facilities, medical planners need to identify an intermediate stop for en route stabilization care. Creating AFRICOM is a direct response to meeting the objectives of the National Security Strategy. Military medicine and force health protection are simultaneously transforming to a global joint force, with interdependent capability, to meet the needs of the military personnel supporting the new AFRICOM. Force health protection is taking care of the "Total Force" throughout the entire spectrum of military commitment.

## **RECOMMENDATIONS**

To accomplish a comprehensive force health protection and health service support strategy for the proposed stability operations in USAFRICOM the following recommendations must be considered:

### **1. Recommend the following organizing principles and practices constitute the force health protection strategy for AFRICOM:**

- Force deployment of physically and mentally fit personnel by ensuring ongoing medical readiness and health and wellness programs in AFRICOM. Physically and mentally fit forces are more likely to resist disease, avoid accidental injuries and return to duty sooner.
- Conduct medical threat surveillance of proposed area of operation by early deployment of preventive medicine team to determine health threat. Ensure command emphasis for implementing preventive medicine countermeasures identified for protecting the force in Africa.
- Determine medical requirements after the operation type, duration, number of forces, and the medical threat of the operation is identified. Laboratory services in area of operation must be a priority to ensure early confirmation of suspected infectious disease contamination.
- Prepare medical evacuation plan for area of operation by coordinating multi-component capabilities. The en-route medical evacuation plan may include host-nation temporary medical hospitalization or pre-positioning of Navy hospital ships to ensure patient stabilization until arrival at Landstuhl Regional Medical Center in Germany.

- Preserve the force by using organic or supporting medical units. Contract medical assets may be required if AFRICOM stability missions exceed their organic or supporting unit medical capability. Non-governmental agencies conducting missions on the continent may be leveraged to supplement medical care.

**2. Recommend command emphasis for implementation of medical programs and preventive medicine countermeasures. Command emphasis must be placed on the following:**

- Communicate the medical threat through the Chain of Command. The risk may be too great for conducting operation in specific region of Africa. Alternate location may be determined.
- Commanders allow time for pre-deployment medical processing and considering Command Surgeon's recommendations for individual deployability status.
- Commanders allocate resources prior to deployment for procuring recommended countermeasures and allowing time for countermeasure to be implemented.
- Communicate the health risk to the force to maximize compliance on the individual member level.
- Commanders remain vigilant and creative during the operation to ensure countermeasure compliance within the force.
- Commanders held responsible and accountable for preventable infectious disease outbreaks during the deployment.

**3. Recommendations for deployment of medical personnel for casualty care in support of AFRICOM's stability operations:**

- Organic medical support must be technologically current, flexible, with mobile capabilities.
- Priority is utilization of organic medical assets.
- Request support from other medical units/commands if organic assets are not available.
- Contract with host-nation for Department of Defense standards of medical care support.
- Coordinate with Non-Governmental Agencies (NGOs) providing medical support in Africa.
- Require all deployable military personnel to be Combat Life Saver (CLS) trained to provide first response medical care.
- Locate limited emergency care as far forward as area of operation allows.
- Plan for en route care and rapid medical evacuation for definitive care.

**4. Recommend the following staffing and reporting alignment for the proposed Command Surgeon's Office in AFRICOM:**

- Office of the Command Surgeon remains on Special Staff to the Commander, USAFRICOM.
- Remove Medical Division (International Health Programs, Medical Plans and Operations, and Force Health Protection) from the supervision of Directorate for Operations and Logistics.

- Move Medical Division (International Health Programs, Medical Plans and Operations, and Force Health Protection) reporting directly to the Command Surgeon on the Special Staff.
- Aggressively fill AFRICOM medical staff positions.

## **CONCLUSION**

Military operations are transforming and changing to meet today's challenges in supporting the United States National Security Strategy. Creating U.S. AFRICOM is a direct result of the United States' efforts to promote security and stability in Africa. Force health protection must simultaneously change in concert to support the transforming military operations of the 21<sup>st</sup> Century.

U.S. AFRICOM must develop a force health protection strategy to protect the "Total Force" while conducting operations in Africa. The strategy must focus on recruiting, retaining, and deploying a healthy and fit force, identifying and communicating health risks, ensuring appropriate countermeasures are implemented and committing resources for far forward, flexible, technological capable and comprehensive medical care and evacuation.

Force health protection and the Department of Defense's transformation must simultaneously move forward. There is no time like now to develop a strategy for force health protection in AFRICOM.

## ENDNOTES:

<sup>1</sup> "President Bush Creates a Department of Defense Unified Combatant Command for Africa." *White House News, Office of the Press Secretary*, 6 February 2007, available from <http://www.whitehouse.gov/nes/releases/2007/02/print/20070206-3.html>; Internet; accessed 7 November 2007.

<sup>2</sup> *U.S. Africa Command (AFRICOM) Home Page*, available from <http://www.africom.mil>; Internet; accessed 17 December 2007.

<sup>3</sup> U.S. Africa Command Transition Team, Rear Admiral Robert Moeller, Executive Director. "U.S. Africa Command Frequently Asked Questions." available from <http://www.eucom.mil/africom/>; Internet; accessed 23 August 2007.

<sup>4</sup> "Africa Command Geared Toward Stability." *American Forces Press Service News Articles*. 7 February 2007, available from <http://www.defenselink.mil/News/NewsArticle.aspx?id=2965>; Internet; accessed 23 August 2007.

<sup>5</sup> David H. Trump, "Force Health Protection: 10 Years of Lessons Learned by the Department of Defense," *Military Medicine* Volume 167, Number 3: (March 2002), 179.

<sup>6</sup> U.S. Department of the Army, *Preventive Medicine*, Army Regulation 40-5 (Washington, D.C.: U.S. Department of the Army, 25 May 2007, 16.

<sup>7</sup> Department of Defense Instruction, *Subject: Force Health Protection (FHP) Quality Assurance (QA) Program*, Number 6200.05, 16 February 2007, 8.

<sup>8</sup> Force Health Protection Capstone Document, available from <http://www.deployementlink.osd.mil/pdfs/fhp2004.pdf>; Internet; accessed 24 January 2008, 3.

<sup>9</sup> Ibid, 13.

<sup>10</sup> U.S. Army Recruiting and Retention End of Fiscal Year 2006 Fact Sheet, available from <http://www.armyg1.army.mil/docs/public%20affairs/EOY%2006%20Fact%20sheet%20for%20media.pdf>; Internet; accessed 4 March 2008, 2-3.

<sup>11</sup> Force Health Protection Capstone Document, 13.

<sup>12</sup> Ibid, 25.



<sup>13</sup> United States Army War College, *How the Army Runs: A Senior Leader Reference Handbook*. 25<sup>th</sup> Edition 2005-2006, Chapter 19: The Army Health Service Support System, 417.

<sup>14</sup> Chairman of the Joint Chiefs of Staff Joint Publication 4-02, *Health Service Support*, 31 October 2006, I-2.

<sup>15</sup> Force Health Protection Capstone Document, 37.

<sup>16</sup> Bruno P. Pertuccelli, MD, MPH and Bonnie L. Smoak, MD, PHD, MPH, *Military Preventive Medicine: Mobilization and Deployment*, Volume 1, (2003), 221.

<sup>17</sup> Wikipedia, available from <http://wikipedia.org/wiki/Africa>. Internet; accessed 22 January 2008.

<sup>18</sup> "Healthcare in Africa: New hospitals in Africa provide quality healthcare", *Business Guide Internet Edition*, available from <http://www.africa-business.com/features/healthcareafrica.html>; Internet; accessed 16 January 2008.

<sup>19</sup> "Paper on NGO Participation at the United Nations", *Global Policy Forum*, available from <http://www.globalpolicy.org/ngos/ngo-un/access/2006/0328participation.htm>; Internet; accessed 25 February 2008, 1.

<sup>20</sup> "Networking: DIRECTORY OF AFRICAN NGOs", United Nations Online Network in Public Administration and Finance, available from <http://www.unpan.org/NGO-Africa-Directory/index.htm>; Internet; accessed 25 February 2008.

<sup>21</sup> Department of the Army, *Preventive Medicine*, Army Regulation 40-5, Washington, D.C.: U.S. Department of the Army, 25 May 2007, 2.

<sup>22</sup> Textbooks of Military Medicine, *Military Preventive Medicine: Mobilization and Deployment*, Volume 1, 2003, XV.

<sup>23</sup> Pertuccelli, 215.

<sup>24</sup> Walter Reed Army Institute of Research Home Page, *Military Infectious Diseases-Emerging Infectious Diseases*, available from <http://wrair-www.army.mil/index.php?view=militaryInfectiousDiseases> Internet; accessed 20 November 2007, 2.

<sup>25</sup> Pertuccelli, 222.

<sup>26</sup> Pertuccelli, 220.

- <sup>27</sup> *Preventive Medicine*, 34.
- <sup>28</sup> Stanley M. Lemon, Susan Thaul, Salem Fisseha, and Heather C. O'Maonaigh, "Protecting Our Forces: Improving Vaccine Acquisition and Availability in the U.S. Military," *Institute of Medicine of the National Academies*, (2002), Executive Summary, 3.
- <sup>29</sup> Force Health Protection Capstone Document, 25.
- <sup>30</sup> Richard Jadick, CDR and Thomas Hayden. On Call in Hell-A Doctor's Iraq War Story. NAL Caliber, New York, 2007, 99-104.
- <sup>31</sup> Dennis C. Pirages, "Nature, Disease, and Globalization; An Evolutionary Perspective," *International Studies Review*, (Winter 2007, Volume 9, Issue 4), 622.
- <sup>32</sup> Charlene Laino, "Africa, the infectious continent-With global warming, Africa is challenged by exotic pathogens," *MSNBC*, (4 November 1999), available from <http://www.msnbc.msn.com/id/3072106/print/1/displaymode/1098/>; Internet; accessed 22 January 2008.
- <sup>33</sup> Department of the Army, *Immunizations and Chemoprophylaxis*, Army Regulation 40-562, Washington, D.C: U.S. Department of the Army, 29 September 2006, 16-17.
- <sup>34</sup> *Military Infectious Diseases-Emerging Infectious Diseases*, Malaria.
- <sup>35</sup> Center for Disease Control, *Geographic Distribution of Potential Health Hazards to Travelers, Travelers' Health: Yellow Book, CDC Health Information for International Travel 2008*, available from <http://wwwn.cdc.gov/travel/contentDiseases.aspx> Internet; accessed 20 November 2007, Malaria, 1-4.
- <sup>36</sup> Department of Defense HIV/AIDS Prevention Program (DHAPP), *Reducing the Incidence of HIV/AIDS Among Uniformed Personnel in Selected African Nations and Beyond, 2006 Annual Report*, January 2007, 7, 21, 120.
- <sup>37</sup> *Geographic Distribution of Potential Health Hazards to Travelers*, HIV, 1.
- <sup>38</sup> *Ibid*, Dengue Fever, 1-5.
- <sup>39</sup> *Military Infectious Diseases-Emerging Infectious Diseases*, Dengue Fever.
- <sup>40</sup> *Geographic Distribution of Potential Health Hazards to Travelers*, Viral Hemorrhagic Fevers, 1-3.

- <sup>41</sup> Ibid, Hepatitis, Viral, Type E, 1.
- <sup>42</sup> Ibid, Trypanosomiasis, 1-2.
- <sup>43</sup> Ibid, Schistosomiasis, 1-2.
- <sup>44</sup> Ibid, Leishmaniasis, 1-2.
- <sup>45</sup> Ibid, Yellow Fever, 1-2.
- <sup>46</sup> Ibid, Hepatitis A, 1-2.
- <sup>47</sup> Ibid, Hepatitis B, 1-3.
- <sup>48</sup> Ibid, Typhoid Fever, 1-2.
- <sup>49</sup> Ibid, Meningococcal Disease, 1-2.
- <sup>50</sup> Ibid, Rabies, 1-2.
- <sup>51</sup> Department of Defense Directive, *Subject: Policy and Program for Immunizations to Protect the Health of Service Members and Military Beneficiaries*, Number 6205.02E, 19 September 2006, 1.
- <sup>52</sup> Department of Defense Memorandum, *Subject: Updated Policy for Prevention of Arthropod Borne Diseases Among Department of Defense Personnel Deployed to Endemic Areas*, 18 May 2007.
- <sup>53</sup> USCINCPAC Instruction 6200.2, Subject: Commander in Chief, U. S. Pacific Command (USCINCPAC) Force Health Protection (FHP) Program for Deployments, available from <http://www.pacom.mil/staff/health/6200-1/6200-1-basic-inst.htm> Internet; accessed 23 January 2008, 13.
- <sup>54</sup> Force Health Protection Capstone Document, 28.
- <sup>55</sup> David G. Schall COL, United States EUCOM Surgeon, briefing slides, "USAFE MTF Commanders Conference", 8 January 2008.

## BIBLIOGRAPHY

- Africa-Business, *Healthcare in Africa-Moving Ahead*, available from [http://www.africa-business.com/features/healthcare\\_africa.html](http://www.africa-business.com/features/healthcare_africa.html); Internet; accessed 16 January 2008.
- Boomsma, Louis, Acting Program Manager, Global Threat Assessment Program, U. S. Army Center for Health Promotion and Preventive Medicine. Interview by author, 28 November 2007, Aberdeen Proving Grounds, MD.
- Cates, Michael B., BG, VC, USA, *Prevention is the best way to health*, U.S. Army Medical Department Journal, April-June 2006.
- Center for Disease Control, *Geographic Distribution of Potential Health Hazards to Travelers*, Travelers' Health: Yellow Book, CDC Health Information for International Travel 2008, available from <http://wwwn.cdc.gov/travel/contentDiseases.aspx>; Internet; accessed 20 November 2007.
- Center for Disease Control, available from <http://www.cdc.gov>; Internet; accessed 27 January 2008.
- Dane, Dana, Lt Col, Chief, Force Health Protection & Public Health Emergency Officer, EUCOM Command Surgeon's Office, HQ USEUCOM. Interview by author, 7 January 2008, Stuttgart, Germany.
- Department of Defense Directive, *Subject: Force Health Protection (FHP)*, Number 6200.04, Certified Current as of 23 April 2007.
- Department of Defense Directive, *Subject: Health Promotion and Disease/Injury Prevention*, Number 1010.10, Certified Current as of 24 November 2003.
- Department of Defense Directive, *Subject: Health Services Operations and Readiness*, Number 6000.12, Certified Current as of 24 November 2003.
- Department of Defense Directive, *Subject: Human Immunodeficiency Virus (HIV)/Acquired Immune Deficiency Syndrome (AIDS) Prevention: Support to Foreign Militaries*, Number 6485.02E, 7 November 2006.
- Department of Defense Directive, *Subject: Policy and Program for Immunizations to Protect the Health of Service Members and Military Beneficiaries*, Number 6205.02E, 19 September 2006.

- Department of Defense-*Global Emerging Infectious System Home Page*, available from <http://www.geis.fhp.osd.mil>; Internet; accessed 7 September 2007.
- Department of Defense HIV/AIDS Prevention Program (DHAPP), *Reducing the Incidence of HIV/AIDS Among Uniformed Personnel in Selected African Nations and Beyond*, 2006 Annual Report, January 2007.
- Department of Defense Instruction, *Subject: Force Health Protection (FHP) Quality Assurance (QA) Program*, Number 6200.05, 16 February 2007.
- Department of Defense Memorandum, *Subject: Updated Policy for Prevention of Arthropod Borne Diseases Among Department of Defense Personnel Deployed to Endemic Areas*, 18 May 2007.
- Department of the Army, *Combat Health Support in Stability Operations and Support Operations*, Field Manual 8-42, Washington, D.C. U.S. Department of the Army, October 1997.
- Department of the Army, *Force Health Protection in a Global Environment*, Field Manual 4-02, Washington, D.C. U.S. Department of the Army, February 2003.
- Department of the Army, *Immunizations and Chemoprophylaxis*, Army Regulation 40-562, Washington, D.C: U.S. Department of the Army, 29 September 2006.
- Department of the Army, *Medical Services-Preventive Medicine*, Army Regulation 40-5, Washington, D.C.: U.S. Department of the Army, 25 May 2007.
- Folarin, Victor A., COL, MD, MS, MPH, Interim Command Surgeon & Chief, International Health Programs, HQ USAFRICOM. Interview by author, 7 January 2008, Stuttgart, Germany.
- Force Health Protection Capstone Document, available from <http://www.deploymentlink.osd.mil/pdfs/fhp2004.pdf>; Internet; accessed 24 January 2008.
- Force Health Protection & Readiness Policy & Programs Homepage*, available from <http://fhp.osd.mil>; Internet; accessed 4 December 2007.

Geography Faculty Department of Geography & Engineering, *Afghanistan: A Regional Geography*, United States Military Academy, West Point, New York, 2001.

*Global Policy Forum*, "Paper on NGO Participation at the United Nations", available from <http://www.globalpolicy.org/ngos/ngo-un/access/2006/0328participation.htm>; Internet; accessed 25 February 2008.

Grabenstein, John D., RPh, PhD and Phillip R. Pittman, MD, MPH and John T. Greenwood, PhD and Renata J.M. Engler, MD, *Immunization to Protect the U.S. Armed Forces: Heritage, Current Practice, Prospects*, *Epidemiologic Reviews*, Volume 28, 2006, 3-26.

Jadick, Richard, CDR and Thomas Hayden. *On Call in Hell-A Doctor's Iraq War Story*. NAL Caliber, New York, 2007.

Joint Publication 4-02, *Health Service Support*, 31 October 2006.

Kaczor, Jennifer Wisnewski, *HIV/AIDS in the Ranks: Responding to AIDS in African Militaries*, 4 June 2002, available from [http://www.wilsoncenter.org/index.cfm?fuseaction=events.event\\_summary&event\\_id=22070](http://www.wilsoncenter.org/index.cfm?fuseaction=events.event_summary&event_id=22070); Internet; accessed 25 January 2008.

Klugman, Keith P. *Emerging Infectious Diseases-South Africa*, Volume 4, Number 4, October-December 1998, available from <http://www.cdc.gov/ncidod/eid/vol4no4/klugman.htm>; Internet; accessed 22 January 2008.

Koch, Tom. *Cartographies of Disease: Maps, Mapping, and Medicine*, ESRI Press, New York, 2005.

Laino, Charlene. *Africa, the infectious continent*, MSNBC, November 1999, available from <http://www.msnbc.msn.com/id/3072106/print/1/displaymode/1098/>; Internet; accessed 22 January 2008.

Lang, Laura. *GIS for Health Organizations*, ESRI Press, New York, 2000.

Lawrence, Steve, LTC, Force Health Protection Officer, USAFRICOM. Interview by author, 7 January 2008, Stuttgart, Germany.

Lemon, Stanley M., Susan Thaul, Salem Fisseha and Heather C. O'Maonaigh, *Protecting Our Forces: Improving Vaccine Acquisition and Availability in the U.S. Military*, The National Academies Press, available from

- [http://books.nap.edu/openbook.php?record\\_id=10483&page=1](http://books.nap.edu/openbook.php?record_id=10483&page=1) Internet; accessed 15 January 2008.
- Lugo, Angel L. LTC, James P. Normile III, Edgar B. Murphy and Larry W. Wild, The Army's MRI, Military Medical Technology, Online Archives, Volume 8, Issue 4, 19 May 2004.
- Magnuson, Stew. *DARPA Hard*, National Defense, November 2007.
- Mallaby, Sebastian. *How Africa Subsidizes U. S. Health Care*, Washingtonpost.com, 29 November 2004, available from <http://www.washingtonpost.com/wp-dyn/articles/A18883-2004Nov28.html>; Internet; accessed 16 January 2008.
- Meade, Melinda S. and Robert J. Earickson. Medical Geography. Second Edition. New York: The Guilford Press, 2000.
- Palka, Eugene J., COL, PhD, Professor and Head Department of Geography & Environmental Engineering, U.S. Military Academy. Interview by author, 16 November 2007, West Point, NY.
- Palka, Eugene J. and Francis A. Galgano. Military Geography: From Peace to War. Boston: McGraw Hill Publishing, 2005.
- Pirages, Dennis C. "Nature, Disease, and Globalization; An Evolutionary Perspective," *International Studies Review*, (Winter 2207, Volume 9, Issue 4)
- Presidential Review Directive 5, *A National Obligation: Planning for Health Preparedness for and Readjustment of the Military, Veterans, and Their Families after Future Deployments*, National Science and Technology Council, August 1998.
- Rowe, Rusty, LTC, MD, Command Surgeon, HQ SOCEUR. Interview by author, 7 January 2008, Stuttgart, Germany.
- Schall, David G. COL, United States EUCOM Surgeon, briefing slides, "USAFE MTF Commanders Conference", 8 January 2008.
- Stricklin, Daniela and Bjorn Sandstrom and Annica Waleiji and Hakan Eriksson, and Christina Edlund and Magnus Normark and Kristina S. Westerdahl and Anders Lindblad and Rune Berglind and Birgitta Liljedahl. Medical Threat Assessment Models for International Deployments, FOI-Swedish Defense Research Agency, June 2007.

Textbooks of Military Medicine, *Military Preventive Medicine: Mobilization and Deployment*, Volume 1, 2003.

The African Guide, Vaccinations, *Medical and Health in Africa*, available from <http://www.africaguide.com/traveltips/planning.htm#medical>; Internet; accessed 5 September 2007.

The Military Vaccine Agency, *Vaccines-Diseases*, available from <http://vaccines.mil/default.aspx?cnt=disease/diseaseHome>; Internet; accessed 15 January 2008.

Third World Traveler, *Disease Risks and Precautions in Central Africa*, available from <http://www.thirdworldtraveler.com>; Internet; accessed 23 August 2007.

Trump, David H., CAPT, MC, USN, *Force Health Protection: 10 Years of Lessons Learned by the Department of Defense*, Military Medicine, Volume 167, Number 3:179, March 2002.

United Nations Online Network in Public Administration and Finance, "Networking: DIRECTORY OF AFRICAN NGOs," available from <http://www.unpan.org/NGO-Africa-Directory/index.htm>; Internet; accessed 25 February 2008.

United States Africa Command (AFRICOM) Home Page, available from <http://www.africom.mil/>; Internet, accessed 17 December 2007.

United States Army Center for Health Promotion and Preventive Medicine, Deployment and Environmental Surveillance Program, *Assessment of the Medical Threat to Installations to Prioritize Force Protection/AnitTerrorism (FP/AT) Chemical, Biological, or Radiological (CBR) Efforts*, Fact Sheet, 47-001-0303.

United States Army Center for Health Promotion and Preventive Medicine, *Medical Threat Briefings Homepage*, available from <http://usachppm.apgea.army.mil/hiomtb/> ; Internet; accessed 27 November 2007.

United States Army Recruiting and Retention End of Fiscal Year 2006 Fact Sheet, available from <http://www.armyg1.army.mil/docs/public%20affairs/EOY%2006%20Fact%20sheet%20for%20media.pdf>; Internet; accessed 4 March 2008.

United States Army Transformation Roadmap, 1 November 2003.



United States Army War College, *How the Army Runs-A Senior Leader Reference Handbook*, 25<sup>th</sup> Edition 2005-2006.

USCINCPAC Instruction 6200.2, Subject: Commander in Chief, U. S. Pacific Command (USCINCPAC) Force Health Protection (FHP) Program for Deployments, available from <http://www.pacom.mil/staff/health/6200-1/6200-1-basic-inst.htm>; Internet; accessed 23 January 2008.

Walter Reed Army Institute of Research Home Page, *Military Infectious Diseases-Emerging Infectious Diseases*, available from <http://wrair-www.army.mil/index.php?view=militaryInfectiousDiseases!>; Internet; accessed 20 November 2007.

White House News, Office of the Press Secretary, "President Bush Creates a Department of Defense Unified Combatant Command for Africa". February 6, 2007, available from <http://www.whitehouse.gov/nes/releases/2007/>. Internet, accessed 7 November 2007.

Wikipedia, *Africa*, available from <http://wikipedia.org/wiki/Africa>; Internet; accessed 22 January 2008.

Wood, Sara Sgt, USA, "Africa Command Geared Toward Stability", *American Forces Press Service News Articles*, February 7, 2007, available from <http://www.defenselink.mil/News/NewsArticle.aspx?id=2965>; Internet; accessed 23 August 2007.

All Internet links verified on 25 February 2008. (Some links may only be available for a limited time.)

